

**Geography 747: Seminar in Physical Geography**  
**Lab, Field, and Analytical Methods in Watershed Hydrology**  
<http://people.cas.sc.edu/ajames/747/main.html>

**Seminar Meetings:** Wed. 2:20 - 4:50 pm, Callcott, Rm 228

**Instructor:** Dr. Allan James, Rm 206 Callcott; [AJames@sc.edu](mailto:AJames@sc.edu)

**Office Hours:** Tue. & Thur. 10:50-11:50, or by appointment

This research seminar will provide field, laboratory, and analytical experience in hydrology, water quality, sedimentology, river restoration, and fluvial geomorphology. Data and analysis will focus on Rocky Branch Watershed and Rocky Branch Creek that flows through campus but examples will be drawn from many sources. The seminar will have four components:

- (1) round-table discussions to go over readings about concepts and methods;
- (2) field exercises to examine, measure, survey, set up instrumentation, and sample water, sediment, channel morphology, assess and classify channel reaches, etc.;
- (3) laboratory exercises to process samples and learn lab techniques, and
- (4) computer exercises for spatial analysis.

Readings and discussion will precede field and lab sessions to provide orientations to procedures and equipment. Field work will include topographic surveying (leveling, total station, GPS, etc.), floodplain sediment sampling (coring, bulk density, etc.), water quality sampling, sampling sediment flux (dissolved, suspended, and total solids), measuring discharge, and sonde measurements of DO, pH, EC, etc. We will install an ISCO automated water sampler at the USGS stream gage site in Maxcy Gregg Park. Wet lab work in the biogeomorphology lab will include sediment textures (sieving and hydrometer), total organic carbon, (loss on ignition), bulk density, suspended sediment filtration, etc. Spatial analysis in the computer lab will focus on merging our data with a variety of hydrologic, land-use, topographic, and map data collected over the past year including LiDAR topographic data, storm-sewer maps (MS4), impermeable surfaces, historical maps, stream bank assessments, etc.

Previous experience with lab, field, and analytical methods is not required, but students should have some experience in physical geography, geology, surveying, spatial analysis, or hydrology, with expertise in one of these areas to enable leading occasional discussions and exercises. Enthusiasm for learning how to measure, analyze, and map water and earth materials is important. Grades will be determined by a series of exercises, projects, and written assignments.

**Evaluations:**

Participation	20
Assignments and projects	30
Term project and report	<u>50</u>
	100